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- receive the second backing as the second backing is removed from the tape during placement;
- a material placement head configured to place the damping material on the structure after the first backing and the second backing have been removed;
- a device configured to move the material placement head over the structure; and
- a controller configured to control operation of the material placement head to place the damping material on the structure and to control operation of the device to move the placement head over the structure.
2. The apparatus of claim 1, wherein the device includes a robotic device.
3. The apparatus of claim 1, wherein the material placement head includes:
- a dispenser configured to dispense the damping material; and
 - a compactor configured to compact the damping material on the structure.
4. The apparatus of claim 3, wherein:
- the compactor includes a compaction roller; and
 - the dispenser is configured to cut lengths of the tape fed to the compaction roller.
5. The apparatus of claim 1, wherein the controller includes:
- a computer; and
 - a set of programmed instructions.
6. The apparatus of claim 4, wherein the compaction roller is mounted on a powered compaction slide.
7. The apparatus of claim 6, wherein the compaction slide is vertically reciprocable to the compaction roller.
8. The apparatus of claim 7, wherein the compaction slide is configured to displace the compaction roller downwardly into engagement with the structure.
9. The apparatus of claim 8, wherein the compaction slide is further configured to be powered upwardly so that the compaction roller disengages the structure.
10. The apparatus of claim 2, wherein the material placement head is releasably mounted on the robotic device.
11. An apparatus for placing acoustic damping tape on an aircraft structure, comprising:
- a material placement head configured for placing strips of the damping tape in a pre-programmed arrangement on the structure, the placement head including:
 - a supply spool of the damping tape, the damping tape having continuously adhesive surfaces on both sides of the damping tape, a first backing on a first side of the damping tape and a second backing on a second side of the damping tape;
 - a dispenser for dispensing the tape from the supply spool;
 - a cutter assembly for cutting lengths of the dispensed tape;
 - a first take-up spool for taking up a first backing removed from the tape as the tape is being dispensed;
 - a second take-up spool for taking up a second backing removed from the tape as the tape is being dispensed,

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- the second take up pool positioned opposite the first take-up spool relative to the tape; and
 - a compaction roller for compacting the cut lengths of tape against the structure after the first backing and the second backing have been removed;
 - a robotic device configured to move the material placement head across the structure; and
 - a programmed computer configured to control operation of the placement head and the robotic device.
12. The apparatus of claim 11, wherein the material placement head is releasably mounted on the robotic device.
13. The apparatus of claim 12, wherein the aircraft structure is a fuselage section, and further comprising:
- the fuselage section supported on a rotatable mandrel; and
 - the robotic device mounted on a track allowing linear movement along the length of the fuselage section, wherein the linear movement of the robotic device and rotation of the mandrel positions the material placement head such that damping material is applied to a desired area of the fuselage section.
14. A mobile apparatus for automated placement of damping material on a structure, the damping material having continuously adhesive surfaces on both sides of the damping material, a first backing on a first side of the damping material, and a second side on a second side of the damping material:
- at least one material placement head configured to place the damping material on the structure after the first backing has been removed and placed on a first take-up roller connected to the at least one material placement head and after the second backing has been removed and placed on a second take-up roller connected to the at least one material placement head;
 - at least one manipulator configured to move the material replacement head along multiple axes over the structure; and
 - a controller configured to control operation of the at least one material placement head to place the damping material on the structure and to control operation of the at least one manipulator to move the material placement head over the structure.
15. The mobile apparatus of claim 14, further comprising:
- the at least one manipulator comprising one of a pair of robotic devices mounted on a mobile device and multiple gantries, wherein each of the robotic devices in the pair of robotic devices having a multi-axis arm and wrist assembly, the wrist assembly including an end effector configured to attach to the material placement head; and
 - the controller including operator controls, an onboard computer, and related components for controlling the operation of the at least one manipulator in moving the material placement head.
16. The mobile apparatus of claim 14, further including a system for indexing the material placement head to a new location to determine correct positioning of the strips of tape.

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